

## Abstract

*Motion detection can be applied using image segmentation technique, which divide image into regions according to its similarities. Image segmentation technique had been thorough a long history since discovery of digital image technology. Ones of image segmentation technique which can be applied to motion detection is geometric active contour (Caselles, Vincent, 1995). Geometric active contour applied stopping function and level set to active contour evolution : snakes. For using of surveillance system, motion detection technique must be able to meet the term of the detection in a dynamic environment, where many variables and environmental changes can affect the results of detection. Using background subtraction scheme that can minimize error from environmental changes must be applied to support geometric active contour method. Applying hybrid algorithm using the principle of moving mean, temporal standart deviation and rule of three frame differencing on background subtraction process for eliminate background is necessary. Geometric active contour implementation, re-initialization process can be eliminated with applying level set evolution without re-initialization equation (Li, Chunming, Chenyang Xu and Martin D. Fox, 2005), applied to foreground, result from background subtraction process to detect moving object also its shape. This Motion detection technique using a too much resource, with hundreds of iteration at each geometric active contour phase to detect moving object and its shape. This method has not been possible to applied this method for real-time detection.*

*keywords: motion detection, active contour, geometric active contour, moving mean, level set, image segmentation.*